



DEFENSE LOGISTICS AGENCY

THE NATION'S COMBAT LOGISTICS SUPPORT AGENCY



DLA Trusted Obsolescence and Long Term Sustainment

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Program Manager

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WARFIGHTER FIRST

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Agenda



- DMSMS office overview
- DMSMS case processing
- SDW access functions
- Emulation programs
- Trusted Foundry
- DMSMS training
- QSLD/QTSL
- External efforts





What is DMSMS?

- DMSMS is:
“...loss or impending loss of manufacturers ... or suppliers of items that endanger a weapon system's ... support capability.”
- The DoD Requirement:
“DoD Components shall proactively take ... actions to identify and minimize the DMSMS impact on weapon system’s ... logistics support efforts.”
- DMSMS and Obsolescence are terms used interchangeably even though there is “technically” a difference.



Source: DOD 4140.1-R



DLA Challenges



Nothing has really changed other than OBSOLESCENCE has accelerated

Smaller Geometries Drive Migration to Lower Supply Voltages

Escalating Wafer Fabrication Costs

15 Months or Less Commercial Cycles

Most IC Packages Are Plastic
(2001 Unit Shipments of 67.2B)

Forced Re-designs

Extended Equipment Service Life Cycles

Lack Of DMSMS Funding

Military IC Market <.3% of total Semiconductor Market

Lack of Coordinated Buy Efforts



Why a Solution at the Part Level?

- **The Nature of Catalog ICs**
 - Multiple vendors
 - Common building block logic
- **One Solution Resolves Many Issues**
 - Multiple applications per system
 - Multiple systems affected
- **A Broad Perspective is Required**
 - DLA is well positioned to ID multiple WS's & Coordinate cross service acceptance



DMS affects sustainment across weapons platforms

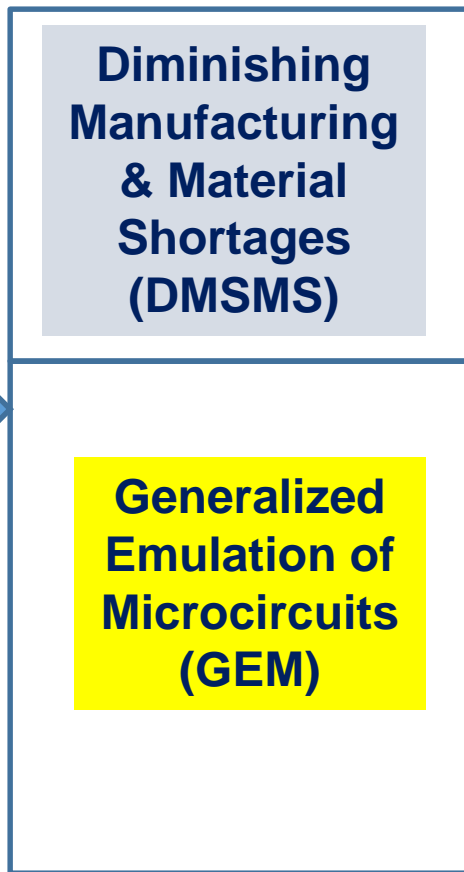


Who we are

Organization

2 Functions

Primary Responsibilities



- Review manufactures discontinuance notices
- Contact the Services for Need
- Make LOT buys when required



- Provide solutions for obsolete microcircuits
- Eliminate CCA redesign
- Prevent repair & production line shutdowns



- SARNOFF Corp.
Government contracted QML Emulation Foundry



The DSCC DMSMS Office



- Lead Organization for DMSMS within DLA
 - Process DMSMS cases
 - Identify alternative solutions to DMSMS life-of-type (LOT) buys
 - Make LOT buys when necessary
 - Perform system analysis
 - Work with US programs 1 on 1 to avoid redesigns
 - Work with International programs to mitigate DMSMS
 - Share Solutions with internal and external customers
- Developed the Shared Data Warehouse (SDW) for DMSMS case processing and to interconnect the services
- Developed the Generalized and Advanced Microcircuit Emulation (GEM/AME) programs to provide long term solutions
- Member DoD DMSMS Working Group
 - Assessment Committee and DMSMS Conference technical session planning





DLA DMSMS IST Operations



Before and after initiation of the case the DMSMS IST will:

Determine that a case is warranted, initiate a DMSMS case in the Shared Data Warehouse for the DSCC enterprise and advises recorded users, GIDEP, FMS customers and DMSMS focal points within DoD.

- DMSMS IST Engineers, Product Specialists, and Item Managers research the case items to find the most cost effective alternative to maintain support for the customer
 - Are there other alternatives to the life-of-type (LOT) buy?
 - Alternate sources
 - Approved Substitute
 - Aftermarket
 - Emulation
 - Other solution types
 - If so, are they acceptable to the recorded users? (DLA Form 339 process may be used here)



DLA DMSMS IST Operations



- Before and after initiation of the case, as warranted, the DMSMS IST will (cont):
 - A procurement is generated only if there is no other acceptable means of support for the NSN
 - Coordinate the proposed solution with all affected, Services, Service Standardization or Engineering Support Activity
 - Determine quantity requirements for the solution part and notify other supply chains as applicable
 - Advise Acquisition personnel of the approved solution and quantity changes
 - Initiate or maintain cataloging and standardization actions for DMSMS items
 - Update the resolution codes through the SDW and GIDEP

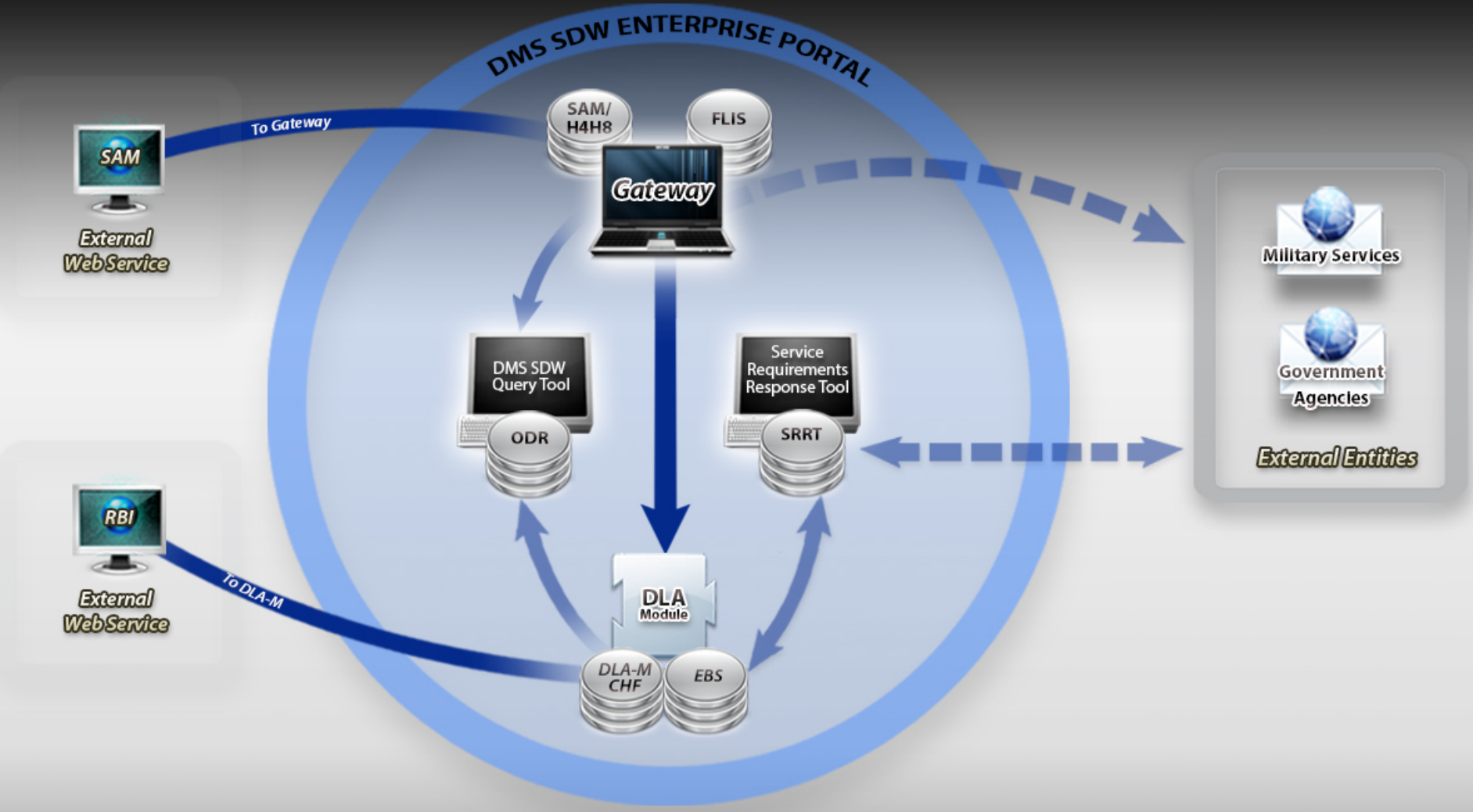


Diagram Key

- = Tool
- = Module
- = Database
- = Emailed Data
- = Web Service



Shared Data Warehouse (SDW)



- Provides single point of entry
- Enables receipt of Diminishing Manufacturing Sources and Material Shortages (DMSMS) notification data electronically via gateway
- Accommodates the business process and workflow of an obsolescence managing activity or military service
- Enables reactive and proactive case processing for managed items
- Provides essential tools for exchanging data, identifying and processing parts and NSNs potentially affected by obsolescence issues, and related inventory requirement
- CAC enabled Request Access



DMSMS Office SDW Roles



- Case Manager-accepts or rejects cases and assigns case
- Product Specialist-research NSN's for obsolescence solutions, and P/N's to see if cross to DLA NSN's if no alternate solution pass to IM.
- Item Manager-receive DLA NSN's with only solution of recommended buy, send ALERT to customers gather RQMT's and initiate PR's if necessary. Close cases when all items have been addressed.



DMS SDW

ENTERPRISE PORTAL

[HOMEPAGE](#)
welcome page

[SYSTEM](#)
system admin

[USERS](#)
user admin

[CONTACT](#)
feedback

[LOGOUT](#)

Welcome to the DMS SDW Enterprise Portal.



DMS SDW Gateway Module



Access to enter OEM Notices of Discontinuance. [Launch»](#)

DMS SDW Query Tool



Search and Reporting Capability through the Obsolescence Data Repository. [Launch»](#)

Service Requirement Response Tool



Access to enter service and agency requirements for stock numbers going obsolete. [Launch»](#)

User Information

Current User: AMBROSE, CHRISTOPHER
Last Login Time: 11/01/2013 03:05:53
Last Login IP: 10.160.30.33

DoD DMSMS Working Group Core Team





DLA SDW Gateway Module



- Central location for submission of discontinuance notices
- Simple FLIS search for NSN's and SOS
- Items go to the GDC (Gateway Distribution Center) if it is a duplicate or has no SOS.
- DLA managed items are funneled down to the DLA SDW Module along with all non stock listed items.
- Service managed items forwarded directly via Email push where they process according to respective business rules.
- Built-in audit trail for OEM discontinuance notices



SDW Query Tool



- Allows users to view obsolescence solutions to DLA managed DMSMS items.
- Line Item Search:
 - NSN
 - P/N
 - Cage Code
 - Final Order Date
- Case Number Search:
 - Gateway#
 - DLA Case#
 - USMC Case#
 - GIDEP Case#
 - AFM Case#



Service Requirements Response Tool (SRRT)



- All new function
- Allow submission of requirements to DLA managed DMSMS items.
- User does not have to be a CMM user in order to submit requirements.
 - *Cuts down e-mail exchanges with non module users & allows for easier and more efficient retrieval and storage of information.*



What is “GEM”?

GEM is an acronym for: “**G**eneralized **E**mulation of **M**icrocircuits”

GEM is a Government funded DLA program, providing mil grade microcircuits for nearly 30 years.

SRI International (formerly Sarnoff Corp) is the prime contractor for the GEM program, located in Princeton, NJ.

SIA agreement prevents Emulation production from competing with industry.

Program goal is to support the warfighter with a cost-effective, long-term solution for sustainment.



Emulation Program Purpose



- AME – (R&D) Efforts that:
 - Identify, develop and validate microcircuit emulation technology needed by the DoD to fill the void when private industry exits the market
 - Provide an alternative to redesign of the NHA by providing form, fit and functional (FFF) device replacements
 - When ready, technology transfer into the GEM production contract
- GEM – (Production) Efforts that:
 - Sustain core QML production capabilities
 - Keep production lead times at minimum (ensure base wafer availability etc.)
 - Address multiple application problems with one component solution
 - Sell FFF parts directly to all ICP's, directly to the military services and to OEMs, ensure that were not competing with private industry
 - Eliminate the time and cost associated with the redesign of the NHA
 - Maintain BCA describing the program benefits



Emulation Programs

Approach

On Demand Manufacturing of Military-Quality Microcircuits



Microcircuit Requirements with no Source

Warfighter Needs Met

DLA DSCC

Military Quality Microcircuits

Requirement: No Emulation Capability Exists

Requirement: GEM Capability Exists

LRIP: Military Quality Microcircuits



GEM Production Price Comp

AME R&D

New Emulation Capabilities Technology Transfer

Needs

- » U.S.-based Stable Source of Microcircuits to Support Low Volume Warfighter Requirements
 - Industrial supply base decreasing
 - Military share of semiconductor market <0.26%
 - Decreasing semiconductor life-cycles, while weapon system life-cycles are continually extended
 - # of NSNs supported by industry dropping each year
 - Counterfeit parts in supply chain on the rise
- » Fill Backorders and Maintain Required Stock Position
- » Cost-Effective Solution for Entire Weapon System Life Cycle

- » Maintain and Improve Emulation Capabilities
- » Design, Manufacture, Test Microcircuits
- » Transition Technologies from AME R&D

Benefits

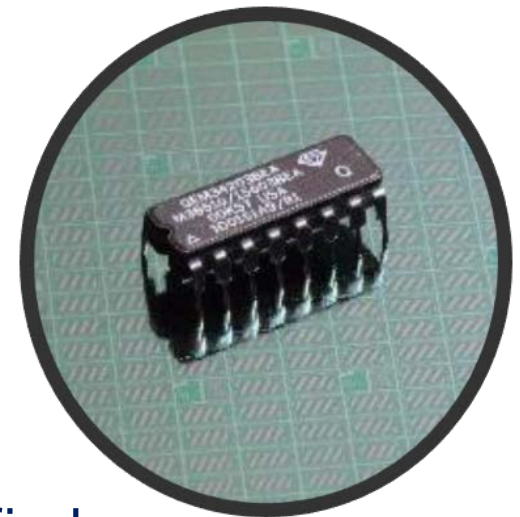
- » Over 400 Weapon Systems Supported
- » Coverage for close to 60% of the 5962 Mil-Spec NSNs
- » Cost Avoidance: \$800M – \$1.8B
- » Provide Long-term System Support
- » Provides Critical Low Volume Parts that Industry Does not Support
- » Avert MICAP and Production Shutdowns
- » Maintain Weapon System Readiness Levels

- » Develop Next Generation Emulation Technologies (reverse-engineering, design, manufacturing, test) to meet New/Advanced Weapon System Requirements
- » Qualify and Prepare New Technologies for Transition to GEM Production



What is an “Emulated Microcircuit”?

- A microcircuit designed and manufactured to be a form/fit/function/interface (F³I) replacement
- Utilizes an ASIC Gate Array Methodology, manufactured on a captive, QML certified, DMEA accredited Trusted wafer fab and manufacturing line (*MIL-PRF-38535*)
- Transparent to supply and logistic system:
 - Same NSN, or part number
 - Will include GEM part number & cage code (0DKS7)
- Designed to all types of specifications
- End result – a part fully compliant and certified to the electrical, mechanical, quality and reliability criteria of the required microcircuit





Emulation Flow

Several arrays exist to target legacy devices across various die size, power, density and performance requirements

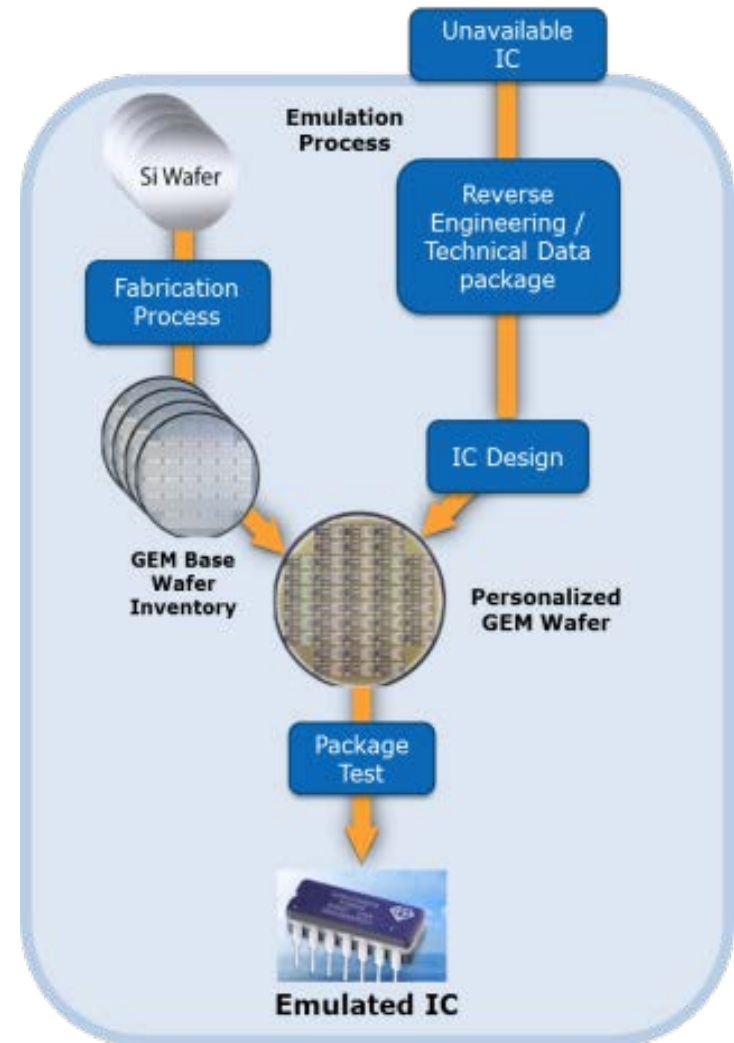
Testing is performed at SRI against sample part if available

Devices are defined at metal using provided or extracted information

Final validation at customer site

Qualification and delivery after prototype acceptance

QML Tested per MIL-PRF 38535





How to Obtain GEM Parts

- Through Direct Contract with SRI
 - Applies to Government, Non-Government, & Commercial Activities
 - Contract Arrangement through SRI and the Customer
- Through DLA logistic channels
 - Requisitions to DSCC
 - MILSVC funded requirements
 - Military Interdepartmental Purchase Request (MIPR) to DSCC/DLA
 - SOW/RFP Prepared and Coordinated by DSCC/DLA
- DLA verification no alternative commercial source

***Who Can Purchase GEM Devices? All Military Services,
All Government and Federal Agencies, Original End
Equipment Manufactures and Distributors***

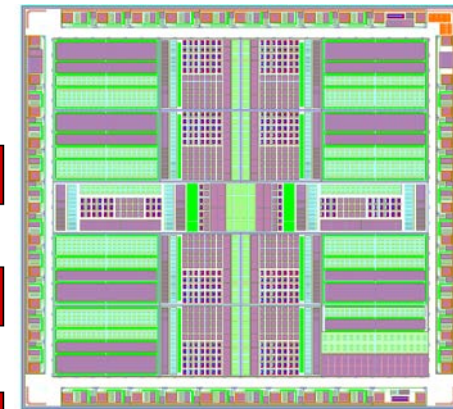
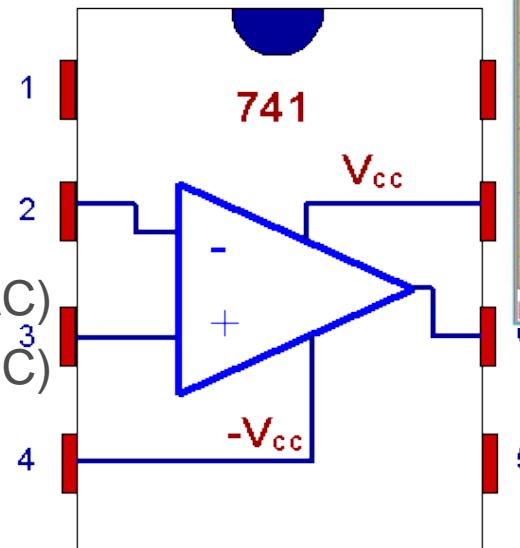


Newest Technology Direction



- DLA's Emulation programs have targeted mostly digital microcircuits
- Analog microcircuits suffer from the same obsolescence issues as Digital types and are more complex to replace
- The AME program is investing in the development of analog arrays to address the analog circuits needed by Weapon Systems

- Operational Amplifiers
- Voltage References
- Voltage Regulators
- Switches
- Digital-to-Analog Converters (DAC)
- Analog-to-Digital Converters (ADC)
- High Power Devices





Proven solution

Used in over 375 Weapon Systems

Over 145,000 QML qualified parts have been delivered*

More than 450 unique devices have been emulated*

Numerous Benefits:

- Over \$2B in redesign cost avoidance
- Avert MICAP and production shutdowns
- Maintain weapon system readiness levels
- Address counterfeit concerns with on-shore source of supply
- Support warfighter with cost-effective, long-term solution for sustainment

GEM Breaks the Obsolescence Cycle



Qualified Suppliers List of Distributors (QSLD)



What it is:

- Supports DLA Land and Maritime acquisition for military and commercial parts
- Program for products in FSC's 5961 (Semiconductor Devices)/5962 (Advanced Microcircuits)
- Implemented March 2009
- Quality management system required
- On site validation required
- Full chain of custody available (Valid traceability documentation available)
- The QSLD is for distributors not QML manufacturers
- **43 Current Qualified Distributors**





Qualified Testing Suppliers List (QTSL)



What it is:

- Supports DLA Land and Maritime acquisition for military and commercial parts
- Implemented February 2013
- Quality management system required
- On site validation required
- Full chain of custody not available (no traceability)
- Required counterfeit mitigation testing/inspection to validate authenticity
- Requires counterfeit mitigation program
- Program for products in FSC's 5961 (Semiconductor Devices)/5962 (Advanced Microcircuits)
- 26 Current Suppliers Listed





QSLD/QTSL Program Benefits



- Helps protect the Supply Chain from counterfeits
- Streamlines acquisition process
- Enhances DLA and supplier relationships
- [http://www.dscc.dla.mil/downloads/VQGeneral/QSLD Booklet.pdf](http://www.dscc.dla.mil/downloads/VQGeneral/QSLD%20Booklet.pdf)



QSLM



- **Small Arms Sourcing Initiative established January, 2013 to investigate persistent and ongoing problems with products in FSC 1005. (1005, 1010, 1015, 1025, 1095)**

Qualified Supplier List for Manufactures (QSLM) for gun parts (56 manufacturers)

- **Contains competitive (AMC/AMSC 1/G) gun part NSN's**
- **On-site validation required initially and periodically**



Available DMSMS Training



- Developed in partnership with DLA, DAU, Karta and ARINC
- Computer based training courses available on the DAU Continuous learning website
 - <https://learn.dau.mil/html/clc/Clc.jsp>
- Five Computer Based Training (CBT) Modules
 - DMSMS Fundamentals (CLL 201)
 - DMSMS for Executives (CLL 202)
 - DLA DMSMS Essentials (CLL 203)
 - DMSMS Case Studies (CLL 204)
 - DMSMS for Technical Professionals (CLL 205)
- 2 Day Hands On Performing Proactive DMSMS Processes - partially complete ---on hold
- PBL course now available (CLL 011)



DSCC DMSMS Office



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For Information on AME: Mr. William Johnson, William.J.Johnson@dla.mil

Websites:

<http://www.dsccl.dla.mil/programs/dmsms/index.html>

<http://dmsms.org> “DKSP”

<http://www.gemes.com>



Questions?

